

B1 sub
C1

11. (Amended) A projection optical system for projecting a pattern of a first object onto a second object, said projection optical system comprising:
a plurality of lenses; and
at least one correcting element for correcting birefringence of said projection optical system.

12. (Amended) A projection optical system according to claim 11, wherein said correcting element comprises at least one optical member having predetermined form birefringence.

13. (Amended) A projection optical system according to claim 12, wherein said at least one optical member is arranged so that a distribution, including a distribution of form birefringence produced by said at least one optical member, is effective to cancel the birefringence to be produced by said plurality of lenses.

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15. (Amended) A projection optical system according to claim 14, wherein said grating is provided on the surface of at least one of said lenses.

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16. (Amended) A projection optical system according to claim 11, wherein said correcting element comprises at least one optical member having a predetermined stress distribution.

17. (Amended) A projection optical system according to claim 16, wherein said at least one optical member is arranged so that a distribution, including a distribution of stresses produced by said at least one optical member, is effective to cancel the birefringence to be produced by said plurality of lenses.

18. (Amended) A projection exposure apparatus comprising:

an illumination system for illuminating a first object with light; and

a projection optical system for projecting a pattern of the first object illuminated with the light from said illumination system, onto a second object, said projection optical system having a plurality of lenses and at least one correcting element for correcting birefringence of said projection optical system.

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B3 C7 10. (Amended) A projection exposure apparatus according to claim 18, wherein said at least one correcting element comprises at least one optical member having predetermined form birefringence.

21. (Amended) A projection exposure apparatus according to claim 20, wherein said at least one optical member is arranged so that a distribution, including a distribution of form birefringence produced by said at least one optical member, is effective to cancel the birefringence to be produced by said plurality of lenses.

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23. (Amended) A projection exposure apparatus according to claim 22, wherein said grating is provided on the surface of at least one of said plurality of lenses.

24. (Amended) A projection exposure apparatus according to claim 18, wherein said at least one correcting element comprises at least one optical member having a predetermined stress distribution.

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25. (Amended) A projection exposure apparatus according to claim 24, wherein said at least one optical member is arranged so that a distribution, including a distribution of stresses